

ENDURANCE
COLD WATER SWIMMING

MINDSPACE
'MANAGING' HAPPINESS

COVID-19
DEALING WITH LOSS OF SMELL

THE WEEK

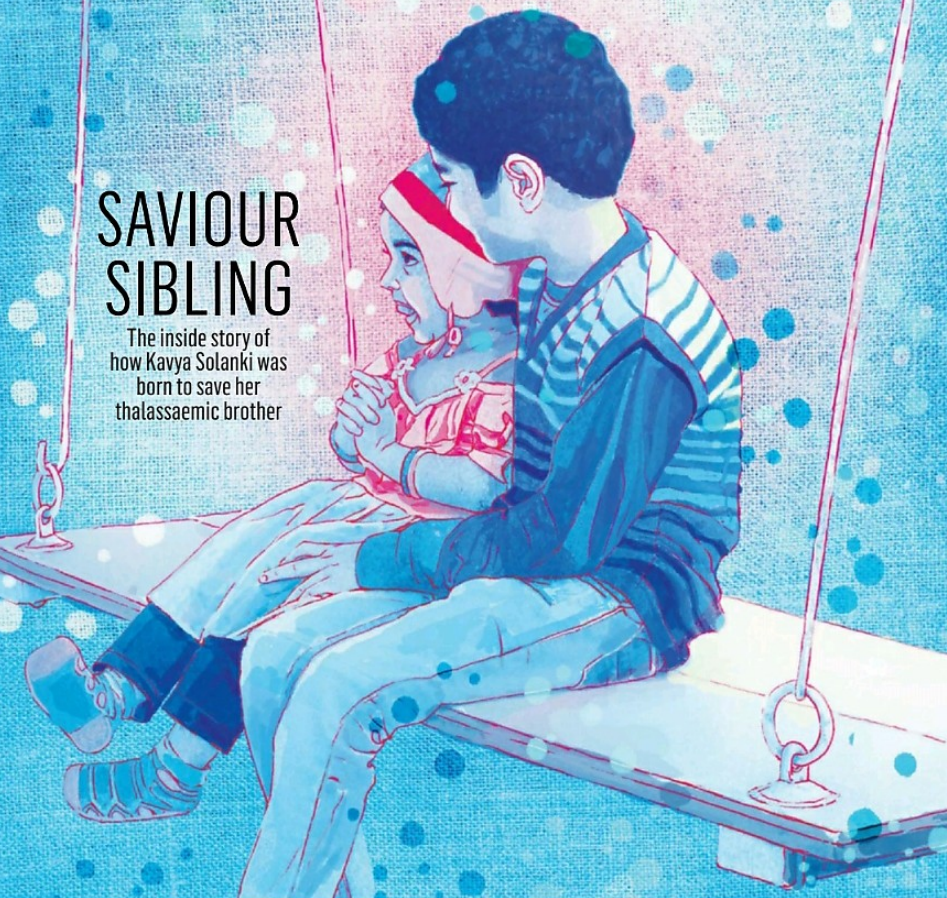
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health

SAVIOUR SIBLING

The inside story of
how Kavya Solanki was
born to save her
thalassaemic brother



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COVER ILLUSTRATION
Binesh Sreedharan

LAYOUT
Rajesh A.S.
Deni Lal, Job P.K.
Ajesh Kumar M.

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LETTERS



Increase physical activity

Your cover story on simple workouts to maintain good health and improve well-being was informative ('Fitness without the frills', February 7).

Health is wealth. Once health is lost, life comes to a standstill. Sedentary lifestyle, unhealthy diet, use of tobacco and alcohol, and mental stress are linked to the rise of non-communicable diseases.

The simplest way to avoid it is to increase physical activity. It can be achieved by following a regime of basic exercises, using body weight and basic equipment, as mentioned in your cover story.

BIJU CHERIYAKAVIL MATHEW,
On email.

I enjoyed reading the cover story on simple workouts to stay fit. I appreciate the commitment shown by Taapsee Pannu to look the part of an athlete in an upcoming film. I fully agree with Dr Debraj Shome, who said if one struggles to lift one's own body weight, what is the point of

visiting a gym to lift additional external weight? This statement has motivated me.

I want to thank the Health team for all the information that you give us.

MUHAMMED AFSAL V.M.,
On email.

Superfotation and superfecundation

Superfotation and superfecundation are two known phenomena in human reproduction ('Expecting the unexpected', February 7). Superfotation is the multiple pregnancy from two different ovulatory cycles—the second ovulation occurring in the early phase of an existing pregnancy. Superfecundation is the multiple pregnancy resulting from separate ova, released in the same ovulatory cycle, by two separate acts of coitus, within a span of 24 hours.

In assisted reproductive technique (ART), superfotation may result from an ovum, which was not aspirated during the procedure but matured and spontaneously released later, provided the woman has functioning fallopian tubes.

DR T. KOSHY CHERIAN,
On email.

Resilience and compassion

Covid-19 has affected humans in ways that no other disease has. It has disrupted the lives of people, causing unprecedented economic, physical and mental problems, especially to older people ('Good days, bad days', February 7). The lockdown, isolation and loneliness have made

Informative article

Dr Alok Vinod Kulkarni has effectively mirrored the turbulence caused by Covid-19 ('The invisible pandemic', February 7). I can't imagine young people thinking of suicide in this manner! The pandemic has derailed our lives socially and economically.

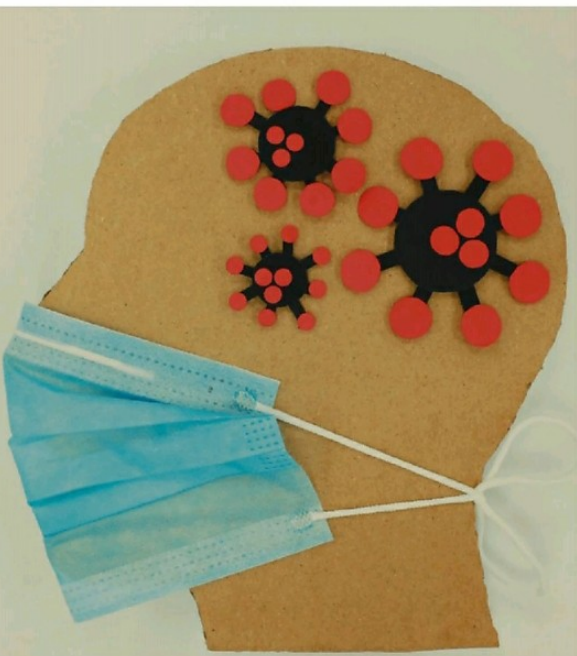
In fact, when such abnormalities strike us, it is psychiatrists who save us. Such articles will caution us to remain stable and calm. MURUGESH H.C.,
Hubli, Karnataka.

Dr Kulkarni's article is apt for the pandemic. It will help in creating awareness about mental health disorders. Such write-ups are very useful for physicians, in general, and psychiatrists, in particular. DR V.R. CHITGUPPI,
On email.

Thank you for publishing Dr Kulkarni's article. It is vital that we raise public aware-

many confused, uncertain and helpless about what is going to happen to them and their families. These situations have created anxiety disorders, where a person feels the possibility of contracting the disease. Such a condition will affect a person's quality of life, by weakening his or her immunity.

People, especially those



ness about these conditions, and that patients with these symptoms are diagnosed correctly.

I want to thank the doctor for highlighting the importance of

providing the right emotional and mental support to all during the pandemic.

DR ANANTA DAVE,
On email.

who are vulnerable, have to manage the present situation by drawing on the remarkable power of resilience and compassion.

K.R.K. MOORTHY,
On email.

The pandemic has suppressed and oppressed the lives of many. Your story reminded

me of a relative who lost his life, unable to cope with depression.

It is sad that some people cannot handle grave situations, which sometimes prompts them to end their lives. Such people need moral support and counselling.

ARATHI RAGHUVeer,
On email.

WRITE TO US!

Have you been touched by an article in HEALTH? Do you have a story or an experience to share? What more would you like to see on the pages? Please write to us. The best letter of each issue wins Rs. 500 worth Amazon.in Email Gift Card. You can mail us at editor@theweek.in or post your letter to The Week, Manorama Buildings, P.B. No. 4278, Kochi-682 036, Kerala, India.

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QUICK SCAN



NIGHT SIGN

HIGHER BLOOD PRESSURE at night compared to this day can increase the risk of Alzheimer's disease in older men. Blood pressure varies over 24 hours and is typically lower at nighttime. But in some people, this pattern is reversed, and they have higher blood pressure at night, which is called reverse dipping.

Nighttime is also important for human brain health and blood pressure is one of the risk factors for Alzheimer's and other types of dementia.

For the study published in the journal *Hypertension*, the researchers used data from 997 Swedish men, who were followed for a maximum of 24 years. The men were in their early seventies at the start of the study.

There were 286 cases of dementia during the study period.

Men with reverse dipping had a 1.64 times greater risk of dementia, especially Alzheimer's disease, compared to those with normal dipping.

QUICK SCAN

AN AFTERNOON NAP HELPS THE BRAIN

A CHINESE STUDY published in the journal *General Psychiatry* suggests that afternoon nap may improve mental agility.

The study was based on 2,214 healthy adults aged at least 60 years. Among them, 1,534 took regular afternoon naps, while 680 did not. The participants in both groups averaged 6.5 hours of nighttime sleep.

Those who took regular afternoon naps had a better cognitive function and scored higher than those who did not take naps, especially on locational awareness, verbal fluency and memory.

Sleep regulates the body's immune response and regular naps may help reduce inflammation.



QUICK SCAN



EXTRA POUNDS MAY HELP

ACCORDING TO A US STUDY published in the journal *Annals of Epidemiology*, people who enter adulthood with a normal weight and go on to become overweight, but not obese, as they grow older, tend to live the longest.

The researchers analysed data on 4,576 people and 3,753 of their children, from age 31 to 80. The participants in the older generation were followed from 1948 through 2010. Their children were followed from 1971 to 2014.

Almost all the members of the older generation had died by the end of the study, which helped the researchers understand better the link between BMI and mortality.

Across both generations, those who started at a normal weight at age 31 and moved on to become overweight later in the life lived the longest. Those who stayed at a normal weight throughout their life had the second-longest lifespan.

Those who started as obese and continued to gain weight had the shortest lifespan.

DID YOU KNOW?

Mindfulness-based stress reduction (MBSR) therapy can help men control their anger and reduce intimate partner violence, including sexual, physical, psychological or emotional violence.

BMC Psychiatry

INSULIN MAY NOT NEED REFRIGERATION

INSULIN VIALS can be stored without refrigeration for four weeks, even in hot weather.

The current pharmaceutical protocol requires insulin vials to be stored between 2° and 8 °C until opened, and then at 25 °C for 4 weeks. This is not always viable in poor, tropical regions and refugee camps where people may not have refrigerators and the temperature can get very hot.

So, people with diabetes often have to go to a hospital every day to get their insulin injections, which could make it difficult for them to go to work.

Researchers from Doctors Without Borders and the University of Geneva tested insulin storage in real conditions ranging from 25 °C to 37 °C for four weeks, the time it typically takes to use a vial of insulin.

The findings published in the journal *PLOS ONE* showed that the structural integrity and stability of insulin stored in fluctuating temperatures were the same as those stored in cold temperatures, with no impact on efficacy. Insulin stored at fluctuating temperatures as well as those kept in cold storage lost no more than one per cent in potency. Pharmaceutical regulation allows a loss of up to five per cent.



QUICK SCAN



HIGH-RISK PATIENTS

COVID-19 PATIENTS who have gum disease are nine times more likely to die. They also have a higher risk of needing ventilators and being admitted to intensive care units.

For the study published in the *Journal of Clinical Periodontology*, researchers examined the health records of 568 patients diagnosed with Covid-19.

Of the 258 patients who had periodontitis, a severe form of gum disease, 33 experienced Covid-19 complications compared to only seven of the 310 patients without periodontitis.

Covid-19 patients with gum disease were 8.81 times more likely to die compared to those without gum disease. They were also 3.54 times more likely to be admitted to intensive care units and 4.57 more likely to need ventilators.

Overall, patients with gum disease were 3.67 times more likely to suffer from severe Covid-19 complications.

Gum disease can be a sign of inflammation and systemic inflammation is also a symptom of Covid-19.

NEW HOPE FOR WEIGHT LOSS

A new weight-loss drug could be a game-changer for people who struggle with obesity. The drug, semaglutide, was almost twice as effective as the current medications in helping people lose weight, according to a study published in the *New England Journal of Medicine*. The weekly injectable 2.4 milligram dose of semaglutide works by reducing hunger and calorie intake.

The 68-week study included 1,961 overweight or obese adults from 16 countries.

The participants started with an average weight of 230 lb and a body mass index of 38 kg/m².

Participants who got semaglutide shots had an average weight loss of 14.9 per cent compared to

2.4 per cent for the placebo group.

Semaglutide proved to be about 1.5 to two times more effective than other weight-loss drugs, which helps people lose between 6 to 11 per cent of their body weight.

One-third of the participants lost 20 per cent (46 lb) of their body weight, which is comparable to what those who have undergone weight-loss (bariatric) surgery lose.

Participants treated with semaglutide also reported better physical functioning, like walking faster and climbing stairs with less pain. They also saw improvements in their blood pressure, cholesterol and blood glucose control.



QUICK SCAN

DID YOU KNOW?

Wearing tight-fitting masks that prevent leakage from the mask's edges by double masking, or wearing a cloth mask over a medical mask, and knotting the ear loops and then tucking in and flattening the extra material close to the face, can cut Covid-19 transmission by 95 per cent.

**Morbidity and Mortality
Weekly Report**



HARM FROM HAND SANITISERS

WIDESPREAD use of hand sanitisers to prevent the spread of Covid-19 may be causing eye injuries among children, according to a French study published in *JAMA Ophthalmology*.

The injury is often caused by accidentally spraying the liquid into the eye or rubbing the eyes before the sanitiser has fully evaporated.

Exposure to small amounts of hand sanitisers is not worrisome. But if large amounts of hand sanitiser get into the eye, it can lead to more severe complications such as keratitis (inflammation of the cornea) or corneal abrasions (scratch on the surface of the eye).

The researchers reviewed data collected by the French Poison Control Centers and a paediatric ophthalmology hospital in Paris on accidental eye injuries and emergency calls related to exposure to hand sanitiser among children under 18 in 2019 and 2020.

Cases related to eye injuries increased sevenfold from April to August in 2020 compared to the same period in 2019.

QUICK SCAN

PREDIABETES IS A PREDICTOR

PEOPLE WITH PREDIABETES have an increased risk of heart attack and stroke. A person with prediabetes has blood sugar levels that are higher than normal but below the levels required for a diagnosis of diabetes.

According to a study published in the *Journal of the American Heart Association*, people who reverse their prediabetes can lower their risk of heart attack, stroke and death from any cause.

The Chinese study included 14,231 participants, average age 58 years, without cardiovascular disease. The participants' blood sugar was checked in 2006, and again in 2008.

From 2006 to 2008, about 45 per cent of the participants reverted from prediabetes to normal blood sugar; about 42 per cent stayed the same, and 13 per cent progressed to diabetes.

During an average follow up of about nine years, there were 713 cases of stroke, 180 cases of myocardial infarction and 941 cases of all-cause mortality.

Participants who reverted to normal blood sugar from prediabetes had a 38 per cent lower risk of heart attack, a 28 per cent lower risk of ischaemic stroke and an 18 per cent lower risk of dying of any cause compared to those who progressed to diabetes.

DID YOU KNOW?

Women who drink coffee during pregnancy are more likely to have kids with behavioural problems, including attention difficulties and hyperactivity.

Neuropharmacology



CONTRIBUTOR: SHYLA JOVITHA ABRAHAM



**Lakshmy
Ramanathan**

Massage mantra

READER RESPONSE to my last column on baby massage was interesting, to say the least! While some wondered what all the fuss was about, others shared accounts of how an oil massage had gone horribly wrong for their babies.

A massage (performed with oil or moisturiser) improves blood circulation, exfoliates dead skin, helps calm an agitated baby and reinforces the bond between baby and caregiver. However, the choice of oil, baby's skin type and local weather conditions are equally important.

Most communities have their own magic oil potion that they think is best for the child. Much of the time, this is based on a community's knowledge and proximity to a particular seed or nut. In India, the oils preferred for baby massages

include coconut, mustard and sesame oil. Mustard oil generates heat and is therefore used during winter or in colder places. People living along the coast prefer coconut oil. Sesame seed oil is generally used to cool down the body and therefore more apt in warmer, drier places. Arab communities, on the other hand, are known to use olive oil simply because it is easily available and deeply nourishing for weather-beaten, desert-exposed skin.

What has to be kept in mind is that the oil used should be cold-pressed. While researching for my book, I came across many Bengali families that had done away with mustard oil massages since their babies would react badly to it. On probing further, I found that there were two kinds of mustard oil available in the

market—cold-pressed and essential oil. The latter type contains allyl isothiocyanate, a skin and mucous membrane irritant. If mistakenly used, this could cause an adverse reaction on baby skin. It is probably to avoid such incidents that doctors these days caution against overdoing massage or suggest that they be done away with altogether! International norms now recommend that non-scented and non-mineral oils be used for baby massage.



Lakshmy Ramanathan is the author of *For Bumper Times: An Indian Mother's Guide to 101 Pregnancy & Childcare Practices*. This is the fourth part of the series and deals with queries and quirks surrounding infant care.

Next issue: Why do babies tuck in and rest legs on their tummy?



Send your parenting stories in less than 150 words along with a photograph at ramanathan.lakshmy@gmail.com

It was a cold Tuesday morning, six years ago. My two-year-old had a bad cold and chest congestion. He could neither eat nor sleep. As a mother to another young child (three months old), I myself was sleep-deprived. The elders in my house suggested that "I do something" about the situation. So I went under a bedsheet, plonked my son on my lap and subjected him to some steam inhalation. What followed was a terrible accident that left a severe burn injury on my son's foot. The recovery took three long, painful months and another year or so for me to overcome my guilt. I realised that steam inhalation was tricky to execute for toddlers. My son's doctor later told me that the billowing steam can irritate and put off even the most adventurous toddlers. This incident taught me that it is better to rely on proven medicine and a trusted doctor's advice. I learnt the hard way that my children are my responsibility and that I should not succumb to others' pressure, however well-intended it might be.



ANGELINA SHALINI,
GURUGRAM

COVID-19

Out of odour

Treatment for prolonged loss of smell stemming from Covid-19 is still investigational

BY MINI P. THOMAS

For Varshith Venu, the most worrisome symptom of Covid-19 was the loss of smell. The 17-year-old from Tirupati, who enjoys the smell of food as much as its flavour, grew anxious when he lost that sense for over four months. "It was terrible. I like chicken biryani and all kinds of Indian breakfast... I hate eating vegetables, though," he says with a smile.

Venu got infected while he was preparing for the CA Foundation exam in Rajasthan. "I consulted doctors thrice," he says. "They gave me some drops and I finally got better."

Anosmia, or the loss of smell, is one of the less common symptoms of Covid-19. "Overall, loss of smell and taste is seen in about 45 per cent of patients," says Dr Sushila Kataria, head and director, department of internal medicine, Medanta the Medicity, Gurugram. "Usually, it returns to normal in one month. Some continue to have an altered sense of smell long after recovering from Covid-19. They report a different smell sensation. Sometimes, the smell comes but not completely."

Any amount of inflammation can compromise blood supply and cause damage to the olfactory receptor neurons responsible for the sense of smell, says Dr Srinivas K., consultant, ENT, head and neck surgeon, Vikram Hospital, Bengaluru. "Most such damages are reversible," he says. "Over a few days, as the blood supply increases, the inflammation comes down, either due to medication or because the disease loses its severity."

Says Dr Kirti Sabnis, infectious disease specialist at Fortis Hospitals, Mumbai: "Supporting cells to olfactory neurons, called sustentacular cells, are studded with ACE (angiotensin-converting enzyme) receptors (which receive the virus). Once this cell balance is disrupted, it could lead to a shutdown of neuronal signalling, and therefore the loss of smell."

Some recovered Covid-19 patients can experience a prolonged loss of smell. "In 20 per cent of our patients, we have seen this condition staying for over eight months or more," says Dr Kalpana Nagpal, senior consultant, department of ENT and head and neck surgery, Indraprastha Apollo Hospitals, Delhi.

Vikram Hospital, Bengaluru has received 14 patients who had recovered from Covid-19 but had an impaired sense of smell. Interestingly, all of them were women. "They no longer enjoyed cooking and it really affected their daily routine," says Srinivas. "Anosmia can have serious consequences. One may not even be able to detect a gas leak in the kitchen."

Anosmia can sometimes lead to olfactory derangement, which can impact daily life. "Two of my patients developed parosmia





(a condition where one's sense of smell gets distorted.) They would find an unpleasant odour in even sweet smelling flowers," says Srinivas. "That was a very challenging treatment. They were treated with a short course of steroid treatment and we even advised nasal dousing with steroids along with smell therapy. One of them has had significant improvement and the other one is on the road to recovery."

However, some patients take longer to recover. "We recommend smell therapy, along with

extensive medication in terms of nasal sprays and tablets to reduce inflammation," says Srinivas. "There is a treatment protocol to be followed. We ask them to spend 15 to 20 minutes a day smelling organic fruits or flowers like jasmine or rose. This helps regenerate and stimulate neurons. We consider it an important part of the treatment. The majority of our patients have benefited from smell therapy. Some people recover within 20 days and some take about a month."

Harika Dev from Bengaluru felt something was amiss while she was applying ointment on her husband. "I smelled it and realised I had lost my sense of smell," says the 31-year-old. She had body pain and fever a few days earlier, and had taken antibiotics and Dolo 650. Dev frantically rushed to her family doctor. He told her that she seemed to have overcome Covid-19 and asked her to just quarantine herself. He also reassured her that she would regain her sense of smell gradually. Later, she got a CT scan, which slowed a slight infection.

As her sense of smell did not improve, Dev consulted Srinivas. "He put me on steroids and smell therapy," he says. "He told me to smell fruits and flowers." Dev has now partially regained her sense of smell.

But not everyone is enthusiastic about smell therapy. "It can be done as supportive care but as medical practitioners, we do not recommend it as it is not scientifically proven to solve any such problem," says Nagpal.

Lack of research means few established methods of treatment exist, says Sabnis. "For my patients, a combination of multivitamins and smell training worked. It helped them have partial recovery within seven months. A few centres have tried a brief period of 'irrigation' of the sinuses with budesonide, a topical steroid," she says.

Sabnis adds that, as anosmia is a neurological phenomenon that is yet to be fully discovered, treatment for prolonged loss of smell is still investigational. ●



Theory of happiness

Ever used management tools to arrive at the secret to a happy and balanced life? Harvard professor Clayton Christensen did

BY ANJULY MATHAI

Some years ago, in the telecommunications industry, the dominant players were Lucent and Nortel. They made the best circuit switching technology. Then a small company called Cisco entered the market. Its router technology was not very good and failed at every level. And yet, it kept going up the ladder and, eventually, overtook Lucent and Nortel as the industry leader. Why?

There is one theory that can explain this David-and-Goliath phenomenon—the theory of disruptive innovation—and the mastermind behind it was one of the foremost business thinkers in the world. Clayton Christensen, a Harvard professor who died of cancer last year, outlined this and various other theories in his 1997 book, *The Innovator's Dilemma*, which *The Economist* called one of

the six most important business books ever written. Netflix, Apple iTunes and Intel are some of the companies which have profited from the theory.

Here's how Cisco did it. It simply kept improving its router and making better circuit switch devices, while Lucent and Nortel started lagging. The reason why large companies lose their momentum is because their priority changes from the product to profitability, says Christensen. They make business decisions targeted at improving their profit margins rather than improving their product. The short-term pursuit of achievement starts taking precedence over the long-term pursuit of excellence. "Investments that pay off tomorrow are much more tangible than investments that pay off ten years from now," he says.

And then Christensen did the most startling thing—he applied his theory to his own life. By anybody's standards, he has achieved a lot. A Rhodes Scholar who studied applied econometrics at Oxford, he graduated from Harvard Business School in 1979 and later joined its faculty, teaching a course called 'Building and Sustaining a Successful Enterprise'. In 2011, *Forbes* called him one of the most influential business theorists of the last 50 years. He was also a believer who served as a missionary in Korea from 1971 to 1973. Many of his theories are deeply rooted in his faith.

In life, too, Christensen concluded, you tend to invest in short-term achievements over long-term goals. In the short-term, an easy way to measure success is by assessing your career graph. "Our careers provide the most concrete evidence that we are moving





forward,” he wrote in an essay published in *Harvard Business Review* in 2010, which remains one of the most-read works in the magazine till date. “You ship a product, finish a design, complete a presentation, close a sale, teach a class, publish a paper, get paid or get promoted. In contrast, investing time and energy in your relationship with your spouse and children typically does not offer that same immediate sense of achievement. Kids misbehave every day. It is really not until 20 years down the road that you can put your hands on your hips and say, ‘I raised a good son or a good daughter.’” Their need to achieve more, he says, is why many of his former classmates at Harvard Business School came to class reunions 10 or 15 years after they graduated, unhappy, divorced and alienated from their children.

But Christensen’s most pro-

found insight came when he was diagnosed with follicular lymphoma in 2010. He says he knew that he had made a substantial impact in the business world and helped many companies maximise profits through his theories. But after his diagnosis, he realised that all that mattered little. The metric by which God would measure his life, he understood, would not be the money in his bank account, but the people whose lives he had touched. “Don’t worry about the individual prominence you have achieved,” he wrote in his essay. “Worry about the individuals you have helped become better people.”

In this era—when we thrive on exalting the self—this is perhaps the most disruptive thing he said, more than his theory of disruptive innovation. Think of the last bookstore you visited. The probability is that the top 10 best-selling or

most recommended books on the shelves were dominated by self-help. Take any advertisement on television—they are all about self-improvement. Fairness creams and designer lipsticks that will make you beautiful and happy in life. The latest bike or car that will make you popular and happy in life.

Almost all Christensen’s guiding principles stem from this insight—that your happiness is contingent on others’. Take his definition of humility. Unlike what many of us believe, humility is not self-deprecation according to him; it is, rather, self-forgetfulness. The most humble people are the ones with a high level of self-esteem. “Generally, you can be humble only if you feel really good about yourself—and you want to help those around you feel really good about themselves, too,” he says. Humility is not thinking less of yourself but, rather, thinking more of others.

The man was a management guru through and through. He deftly applied management theories, such as the theory of preservation of modularity, to the world around him, using them to explain diverse things from why the Euro does not work to why America has started stagnating. He might have impacted dozens of businesses with his theory of disruptive innovation, but his lasting legacy might just be his theory of happiness. ●

COVER STORY

A LIFE MADE, A LIFE SAVED

Kavya Solanki, all of two, is India's first saviour sibling. She was created to cure her ailing brother—a family's decision that turned into a national debate

BY NANDINI OZA





PHOTO: JANAK PATEL/IMAGING: JOB P.K.

HEALTH

COVER STORY

With her cherubic face and a smile that lights up her eyes, Kavya Solanki seems like any other toddler. Only, she is India's first 'saviour sibling'—born to save her thalassaemic brother. At two years, Kavya is obviously oblivious of what that means for her and her family and the community at large.

For her parents—Sahdevsinh and Alpa—Kavya has been a ray of hope and a source of joy after what had been a long, harrowing period in their lives. Their son Abhijit, 7, was diagnosed with thalassaemia major when he was eight months old. That meant his haemoglobin levels kept dropping, at times below five, which, in turn, affected the supply of oxygen in his body. Thalassaemia is a genetic blood disorder. Both Sahdevsinh, 37, and Alpa, 34, are thalassaemia minor, but they had no clue about it—they had no reported history of thalassaemia in the last five generations on both sides, they said. In case of thalassaemia minor parents, there is a 25 per cent chance of their child being either thalassaemia major or thalassaemia free; there is a 50 per cent chance of the child being thalassaemia minor. The Solankis' eldest—nine-year-old Namrata—is thalassaemia free.

Post Abhijit's diagnosis, blood transfusions became a part of his life, Sahdevsinh told THE WEEK. It began as a once-in-28-days cycle and eventually became once every 22 days. And, he had to be taken to Ahmedabad from Gandhinagar, where the Solankis are based, every single time as Sahdevsinh had



JANAK PATEL



SIBLING REVELRY

Abhijit Solanki plays with his elder sister Namrata outside their home in Gandhinagar

COVER STORY

registered Abhijit with Prathama Blood Center there that provided free services for thalassaemia patients. Abhijit would require one unit of blood (around 350ml) every cycle, and the transfusion would cost ₹250 per unit.

The only cure for thalassaemia, the Solankis were told, was a bone marrow transplant. For a successful transplant, Abhijit would need his human leukocyte antigen (HLA) matched with that of the donor. HLAs are a set of proteins responsible for the regulation of the body's immune response. If the HLA doesn't match, the body will reject the transplant. Sadly, neither Abhijit's parents nor Namrata were a match.

So, Sahdevsinh, a gazetted class I officer in the Gujarat government's Narmada and water resources department, started looking for an unrelated donor. There is a 16 per cent chance for an Indian patient to find an unrelated marrow donor in multinational HLA registries, but just 0.008 per cent chance in Indian registries owing to the lack of donors. Despite the dismal statistics, Sahdevsinh did not give up. He trawled through the internet and spoke to parents of other thalassaemia patients. His research led him to the Christian Medical College, Vellore. "CMC put us through to a registry from where we got an unrelated HLA matching donor from the US," said Sahdevsinh.

Sourcing the marrow and transporting it to India and finally getting the transplant done would have cost the Solankis ₹50 lakh. It was way beyond his means, and Sahdevsinh started saving up for it. "Believe me, even though I am a gazetted officer, I do not have a car," he said. For Abhijit's blood transfusions and check-ups, he said he would exchange his two-wheeler with his father's 12-year-old car for the trip to Ahmedabad. Sahdevsinh decided to pay for the transplant by using the gratuity and provident fund of his father Sardarsinh and by selling a part of the land owned by his family.

In April 2017, when Sahdevsinh and two



of his relatives were in Vellore to finalise the date for Abhijit's admission, he came across an article on saviour siblings. The article spoke about how the probability of a matched donor increases through in-vitro fertilisation. And, that changed Sahdevsinh's approach. He had already paid more than ₹2 lakh to get the bone marrow from the US. But he told the doctor to put the procedure on hold for two months. "I was told that the procedure would have to be done all over again and I will also



FUN ZONE
Kavya with her
grandfather
Sardarsinh

JANAK PATEL

In our case, the intention has to be seen. Did we want the baby for particular qualities? Or, to give a healthy life to our son? Consider the fact that such a treatment is available but I do not go for it, isn't that unethical?

—Sahdevsinh Solanki, father of Abhijit and Kavya

have to shell out money again," he said. "I was fine with it as the success of matching HLA is much higher in related donor than in unrelated donor."

Sahdevsinh then did what he has been doing ever since Abhijit was diagnosed with thalassaemia—research. He read up extensively on IVF and bone marrow transplant. And, that is how he landed at Nova IVF Fertility in Ahmedabad. Said its medical director Dr Manish Banker: "I did not have to convince them as the father

COVER STORY

BORN TO SAVE

Targeted IVF is an efficient solution to manage the unavailability of matching bone marrow donors to cure thalassaemia

WHAT IS THALASSAEMIA?

A genetic blood disorder which occurs when there is a defect in the genes involved in haemoglobin synthesis

People with thalassaemia are not able to make enough haemoglobin, which causes mild to severe anaemia

Beta thalassaemia (β thalassaemia) occurs because of malfunction in the haemoglobin subunit beta

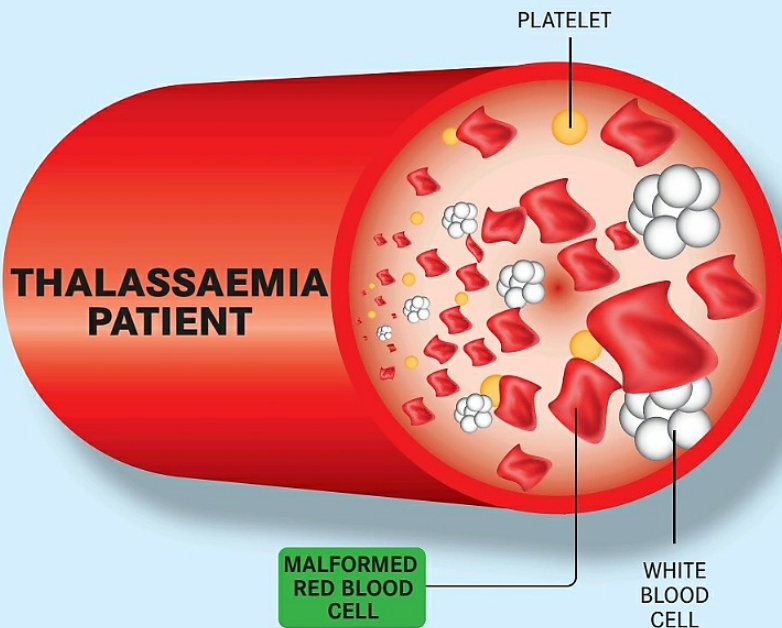
Both parents (carriers) carry one copy of the mutated gene

PREVALENCE IN INDIA

The carrier rate for thalassaemia gene varies from 1%-3% in south India and 3%-15% in north India

Communities such as Sindhis, Punjabis, Bhanushalis, Kutchis, Lohanas, Mahars, Kolis, Agris, Gowdas and Lingayats have been found to have a higher carrier rate

India has an estimated one lakh patients with β thalassaemia; 8,000-10,000 newborns each year



SOURCE NOVA IVF FERTILITY

PREVENTION

People with thalassaemia need to check the status of their partner before planning a pregnancy

Tests before birth can reveal whether offspring will have the condition. If embryo is affected, abortion could be considered

If you are planning to have a baby by IVF, tests can detect and prevent the condition. No need for an abortion

TREATMENT

Palliative: Repeated blood transfusions

Curative: Bone marrow transplant. Done with an HLA-matched donor

HLA

The HLA (human leukocyte antigen) is a system of gene encoding proteins in humans responsible for the regulation of immunity

HLA proteins are associated with disease defence and cause rejection of organ/bone marrow transplant

HLA proteins are diverse and hence two individuals are highly unlikely to have the same HLA coding

The probability of finding a match for an Indian patient in the multinational HLA registries is **16%**. In Indian registries, it is a dismal **0.008%**

HLA-MATCHED IVF

A novel treatment option, which tries to tackle the low probability of finding a match

The mother would go through IVF cycles to get a disease-free HLA-matched embryo. The parents can have a healthy child who can be a donor for the affected sibling

PLATELET

RED
BLOOD
CELL

WHITE
BLOOD
CELL

**NORMAL
PATIENT**

GRAPHICS SREEMANIKANDAN S./ RESEARCH NANDINI OZA

COVER STORY

was well-informed. He had studied well before coming here. I only had to explain the procedure."

In case of the Solankis, it was not only necessary to have a disease-free embryo, but one with a matching HLA, too, so that Abhijit could be cured. Over six months, Alpa underwent three IVF cycles, which resulted in 18 embryos. These were screened for disease-causing genes using pre-implantation genetic testing. Of the 18 embryos, only 10 were found fit. However, the HLAs in only two embryos matched with Abhijit's, and one of these had chromosomal abnormalities. "So only one satisfied all criteria," recalled Banker.

The healthy embryo was then transferred into the uterus. Banker and his team kept their fingers crossed, as they waited for Alpa to get pregnant. "Had she not then the entire effort would have gone waste," he said.

A fortnight later, reports indicated that Alpa was pregnant. But there were a few bumps ahead. "During her pregnancy, Alpa bled twice," said Sahdevsinh. "Once in the third month and once in the eighth month. Luckily though, it did not result in a miscarriage."

On October 30, 2018, Kavya was born. The next task was to match Kavya's HLA with Abhijit's. Earlier, it was the HLA of an embryo that was matched. "The match was 10/10," said Banker. The success of an IVF programme depends on how well an embryo is created, how good the IVF laboratory is, what time the medicines are given and when the eggs are extracted, he added.

Even while going through the IVF cycles, Alpa managed to take Abhijit for blood transfusions. "Had it not been for the joint family, IVF cycles would not have been possible," said Sahdevsinh. He and his family stay with his parents. Also, he said he and his family drew strength from his spirituality. Right from the beginning, there was something that continued to help them and things kept going in the right direction, he said. He cited the time



JANAK PATEL

The fear that using pre-implantation genetic testing could encourage the making of 'designer babies' was misplaced, said Dr Manish Banker, medical director, Nova IVF Fertility. "We should stop the misuse, and not the good use. It should be regulated," he said.

JANAK PATEL



This ethical and unethical debate will remain. However, parents have medico-legal rights to grant permission for such a procedure if the child is a minor. The permission of the child has to be taken if he or she is an adult.

—Dr Deepa Trivedi, haemato-oncologist,
Sankalp-CIMS Centre for Pediatric
Bone Marrow Transplantation

they were about to finalise the unrelated marrow donor and how he came across the article on saviour siblings. He added that he had insisted on the third IVF cycle, should there be no problem for Alpa. “Kavya is the result of the sixth embryo of the third cycle,” he said.

The Solankis waited for a year and a half after Kavya’s birth for the bone marrow transplant. The doctors wanted her to gain 10kg before the procedure. In March 2020, Abhijit was admitted to Sankalp-CIMS Centre for Pediatric Bone Marrow Transplantation. Before the doctors could start the procedure, the parents’ assent was taken on camera; children above seven years, too, have to give the go-ahead on camera. Next, the HLAs of Abhijit and Kavya were matched again. His head shaved, Abhijit was given chemotherapy to dry up the existing bone marrow that had thalassaemia-producing cells. Once the bone marrow had dried up, Kavya was admitted to the centre on March 17. Extra precautions were taken as Covid-19 cases had started spreading across the country. Kavya was

administered anaesthesia and was made to lie down in a prone position. Thereafter, the marrow was extracted from both her pelvic bones. “About 200ml to 400ml is extracted depending on the weight of the donor and the patient,” said haemato-oncologist Dr Deepa Trivedi, who performed the procedure. The marrow was taken in a plastic bag, just like blood, and administered intravenously to Abhijit.

Kavya was discharged the next day after her haemoglobin levels were checked. She was put on multivitamins and iron supplements. Abhijit was discharged on the 16th day after the transplant. The procedure does not take long but the patient is kept under observation for a fortnight or so. That is a critical period, as after transplant there can be internal bleeding and the patient can die, too, said Trivedi. It takes about 10 days for the white blood cells to grow, and during this time the patient is at a greater risk of developing infections.

Abhijit, fortunately, only developed some mouth sores. He watched television and moved around in his room. While at the

COVER STORY

hospital, only Alpa was allowed to stay with him; the nurses went in only when called. "Vital parameters of the patients are monitored through a glass window," said Trivedi, who trained at Memorial Sloan Kettering Cancer Center in the US.

Like all other bone marrow transplant patients, Abhijit, too, was put on immunosuppressant drugs. He will be on these drugs for a year, during which they will be gradually reduced, said Trivedi. The drugs are given to ensure that the body does not reject the bone marrow. The total cost, including the IVF, came to around ₹19 lakh, thanks to the subsidised rates provided by CIMS through Sankalp India Foundation. The foundation also pays for the one-year followup and medicines of thalassaemia patients. Sahdevsinh paid for the treatment from his father's gratuity and provident fund.

Abhijit is now cured and no longer needs blood transfusions. Owing to Covid-19, both he and Kavya mostly stay indoors. While the possibility of a 'saviour sibling' has given hope to parents and patients, doctors harp on the importance of testing, irrespective of whether the parents are thalassaemic or not. In worst-case scenario, the foetus can be aborted.

"Why can a simple test not be made mandatory to detect thalassaemia?" asked Sahdevsinh. "I told the gynaecologist where Abhijit was born that it was due to her carelessness that we were in such a position. The doctor, he said, had no answer."

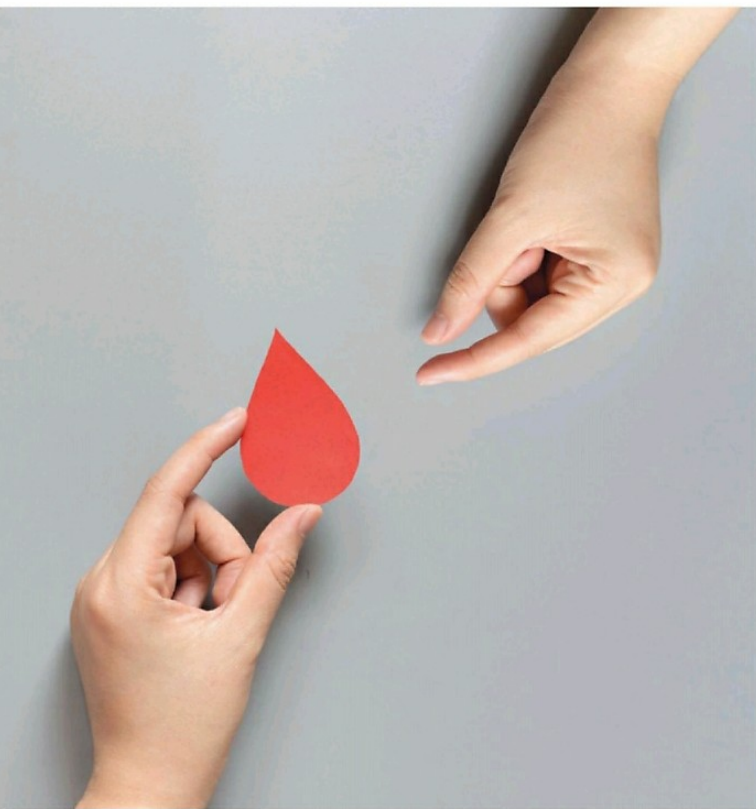
Trivedi said that thalassaemia patients could develop heart ailments, liver problems and issues with sexual organs. Also, one cannot keep getting blood transfusions as that can lead to other health problems. "It also creates much pressure on the blood banks," said Trivedi. Abhijit, she said, was lucky as the chances of finding an HLA match in your sibling is about 25 per cent and rejection 5 to 10 per cent.

But what about Kavya? Is she just a means to an end? A mere commodity? These questions were raised by those who viewed the saviour sibling concept as un-

While the possibility of a 'saviour sibling' has given hope to parents and patients, doctors harp on the importance of testing, irrespective of whether the parents are thalassaemic or not.

ethical. Similar questions were raised when Adam Nash, reportedly the world's first saviour sibling, was born in the US in 2000. His sister, Molly, was born with Fanconi-anaemia, a rare disorder that affects the bone marrow.

"This ethical and unethical debate will remain," said Trivedi. "However, parents have medico-legal rights to grant permission for such a procedure if the child is a minor. The permission of the child has to



be taken if he or she is an adult.”

The fear that using pre-implantation genetic testing could encourage the making of ‘designer babies’, said Banker, was misplaced. At this juncture, we cannot create designer babies, he said, pointing out that even if that is to become a reality in future, we should not stop its use for something good just because there is a potential for misuse. “We should stop the misuse, and not the good use. It should be

regulated,” he said.

Sahdevsinh said that only people in his family’s position would understand their plight. “In our case, the intention has to be seen,” he said. “Did we want the baby for particular qualities? Or, to give a healthy life to our son? Consider the fact that such a treatment is available but I do not go for it, isn’t that unethical?” For parents, he said, a child can be unplanned but never unwanted. ●

ENDURANCE

Thrill of the chill

The benefits and risks of cold water swimming

BY DR DINESH ARAB

The first time I met Dr Lucky Meisenheimer, he was in a tiny speedo swimsuit, with a mask, dark glasses and a big stick. Well, I know what you are thinking, and no, it was not anything too exciting, though I still do not get what the stick was about. We had just finished the Lucky's Lake Swim in frigid temperatures. Lucky was a tall man with the lanky build of a swimmer. He is 64 years old, but not much fat on his body. He banged the stick on the ground—it was like a scene out of *Survivor*—and we did the obligatory photo-op. He then went into his lap pool and started gliding through the water with the effortless and enviable rhythm of a seasoned swimmer.

Lucky Meisenheimer is one of those multitalented individuals. A practising dermatologist, the patron saint of open water swimming locally, and a writer, actor and film producer. He holds multiple open water swim master's records, but what endeared him to the local swim community is opening his home and organising the one-kilometre swim up and down Lake Cain. He and his team of volunteers cleaned up the lake—the swim course is marked with

buoys—and the theme is to make it past the gators, which are omnipresent in every fresh-water body in Florida.

Open water swimming in the cold water during the winter months is a different ball game. You have to be aware of your body response to cold water, or you could get into serious trouble. Coldwater swimming (water temperature between 15-20°C) can be broken down into three parts: getting in, the swim and the post-swim warm-up. The moment you get into cold water, the shock of the cold

water causes immediate loss of breath control, causing rapid breathing, a rapid increase in heart rate and blood pressure. This sudden change can lead to a heart attack and cardiac arrest if you have a pre-existing cardiac condition. The sudden gasp can also cause you to inhale water and the inability to hold your breath can cause drowning even in good swimmers. Another fatal response is a condition referred to as laryngospasm or dry drowning. Here the vocal cords go into spasm when a little water enters the trachea. One way





FROSTY DIP

Natalya Seraya, chairwoman of Walruses of the Capital winter swimming club, swims in Moskva River in Moscow

to avoid initial shock is gently immersing yourself and standing up for 60-90 seconds till your breathing is under control.

Once you start swimming, the cold causes your blood vessels supplying your muscles and nerves to constrict, and divert blood to keep your core warm. This causes our muscles to lose coordination, become stiffer and also stop working. The shoreline for an easy swim may suddenly be out of reach. Once out of cold water you can get dizzy as the blood pressure response is blunted, coupled with

dehydration. It may take 30-40 minutes to rewarm, which accounts for the prolonged shivering that takes place as your core slowly rewarms. Driving during this time is hazardous as response time may be delayed.

I spoke to a colleague who had attempted the dreaded English Channel twice. On both occasions, he lasted two and a half hours, in 14°C water, despite training and completing a ten-hour swim under similar temperatures. The tide and current were not in his favour.

We were scheming on doing Lucky's Swim for a while, and when one of the crew suggested that we would swim it the coming weekend, I jumped at it. I looked at the weather and a cold front was coming in. The temperature was projected to be 3°C with the water temperature 15°C. The swim was to start at 7am, and it was still dark when I got there and parked at Lucky's house. It was freezing and once the entire crew was there, one of the volunteers, Jay, went through the briefing. After checking that we were not complete novices, he went through the route and the rules. He then assured us that if the gators got us, they offered a FedEx service for our body parts.

There was a man from Pittsburgh in a tiny swimsuit, waving his arms in the cold trying to warm up. "Let me show you boys how it is done", he said, grinning as he went into the water. He was part of the Polar Club. There is documented evidence that cold water swimming activates endorphins, helps with depression and, believe or not, increases libido. Also, repeated

exposure to cold water swimming helps your body react better to the stress of cold water, which in turn helps you react to stress better daily, a process called 'cross-adaptation'.

There were five of us, including two women who were the best swimmers. It was cold and dark when we got in. Despite all my medical knowledge, I dove right in with the others. In addition to being the slowest swimmer, I am also the worst with direction. I could not see well as it was dark, and unfortunately, I had brought my dark goggles. As I was swimming, I heard my name being called when I came up and saw that I was swimming away from the group—it is pretty easy to lose the sense of direction in an open water swim. The rest of the swim was enjoyable, as the body adapted to the cold water—it was exhilarating. We did the up and down kilometre pretty easily.

Let us go again, Naomi the lead swimmer suggested, and before I could think they were off. All my hypothermic knowledge went out into the cold water and I followed. I could feel my muscles stiffening on the way back, but we still made it without much effort, and that is when the hypothermia set in for the group. We warmed up, took the pictures, signed the wall of fame. I promised to come back again with my son, who is a high school swimmer, when it was warmer. The gators will be more active, but hey, there is always FedEx.

The writer is chairman, department of medicine, and director, division of cardiology, Florida Hospital Memorial Medical Center, Daytona Beach.

GUEST COLUMN



Block buster

The psychology of writer's block and how to overcome it

BY DR ALOK VINOD KULKARNI

Most writers experience writer's block at some point. This is typically characterised by gazing vacantly at an empty document on their computers or a blank page in their notebooks, with no new stream of thought pouring in. Playwright Paul Rudnick described it as follows: "Writing is 90 per cent procrastination: reading magazines, eating cereal out of the box, watching infomercials. It is a matter of doing everything you can to avoid writing, until it is about four in the morning and you reach the

point where you have to write."

Writer's block, or creative block, is not a new construct. And this is not intrinsic only to writers. Creative people from all walks of life—artists, musicians, poets, entrepreneurs—can and will experience this at some point. Sometimes, inspiration just fails to strike.

What is writer's block?

Creative block is a complex process of thought inhibition preventing a writer from proceeding with a piece in stipulated time, with the result often being that the writer would

abandon the piece altogether.

The construct of writer's block originated in the early 19th century when English poet Samuel Taylor Coleridge first described his "indefinite indescribable terror" at not being able to produce work he thought worthy of his talent. Later on, French writers described the construct of "suffering" being inextricably woven to writing and expanded it to create the myth that all writers possessed a tortured soul, and were unable to write without anguish. The esoteric idea of not being able to accomplish creative work, without



having been subject to personal trauma, probably has its underpinnings in the French concept of suffering for the sake of being able to write.

Writing is an onerous mental process. It requires a certain degree of cognitive expenditure than many other lines of work and that is why most writers struggle. Whether writer's block is a valid psychological construct or a term coined to give the challenges of writing a somewhat romantic flair, the reasons behind the struggle are numerous.

A few plausible cognitive processes come to my mind when I

think about what possibly hinders the journey of writing.

Irrational fear

Most people struggle with being judged for what they are. This will hinder them from putting their ideas out in open space. We should not be too bothered about criticism while making sure to look out for ways to improve.

The fear of being rejected by publishers or readers weighs heavily on many writers. Identifying and accepting this is the first step to getting our creative juices flow once again. One must seek psychological help if this phobia continues to dominate one's life.

Perfectionism

Some thought leaders argue that a constant striving for perfection is the basis of all worthy human pursuit. However, such an enduring pursuit often stems from a distorted sense of perfectionism that sees it as a tool for protection, to shield ourselves from harsh critique or failure.

Some writers may have obsessive-compulsive personality disorder or anankastic personality disorder. They are oblivious to the fact that other people are often annoyed at the extent to which their striving for perfection results in exasperating delays in accomplishing routine tasks. The treatment found to be most effective for this condition is cognitive behavioural therapy (CBT).

Undue self-criticism

It is often said that we are our own worst critics. Unnecessary comparisons to other more suc-

cessful writers or even to our own earlier work is an impediment to fulfilling creative work. This often reaches an impasse wherein nothing ever seems good enough.

Attention deficit/hyperactivity disorder (ADHD)

This is an oft-neglected cause. ADHD is characterised by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.

Inattention generally manifests as tendencies to wander off from tasks, lacking persistence, difficulty sustaining focus and being disorganised. Impulsive behaviour may take the form of the individual making hasty, rash, ill-thought-out decisions with a great potential for harm, or the inability to delay gratification. Treatments include medication, psychotherapy, training or a combination of these modalities.

Negative mood states

This encompasses mood states ranging from anxiety to depression, and including constructs such as dysphoria. Studies have shown that negative mood states are associated with poor functionality and health-related quality of life. Having a number of depressive symptoms but not necessarily at a clinical level can lead to poorer cognition. A positive outlook towards life has shown to be beneficial.

Means to overcome writer's block

Set a writing schedule

Experts say scheduling a time

GUEST COLUMN

to write is the best way to be prolific. Some authors are comfortable to write as soon as they get up after a good night's sleep. Writing can become monotonous, so break the monotony. Regular writing practice may help reduce writing's demands on working memory, freeing experienced writers to create and revise more nuanced prose.

Prepare

The creative process has four stages: preparation, incubation, illumination and verification. To consistently come up with fresh ideas requires a vast amount of reading to be done. While thinking about a topic, it is important to jot down ideas that come to mind. Many a time, these ideas come unexpectedly in a conversation. Document them immediately.

Incubate inspiration

What is referred to as writer's block is waiting for the third phase of creativity. If you are stuck on something, give it a rest for a day or two. Even when we consciously take a break from a project, the brain is still tinkering with it. Sleeping may also help consolidate ideas and associations we have gathered during the day.

Starting the process

To get ideas flowing, sit down in a place of your liking, and then attempt to write. Putting down the first ideas or words that come to you will help you establish the broader framework. Some find that writing in freehand generates more ideas than typing.

Writing involves generating

fresh ideas, and editing involves evaluating ideas. Work will flow more smoothly if we write for one session and edit in another, rather than stopping after each sentence.

Finding the right environment

If you work best in a shared work space, or in a coffee shop or park, go for it. Right environments enable words to gush at consistent pace. Such enabling environments have to be found out through trial and error.

Exercise

Studies have found that people have a greater degree of divergent thinking while walking, and that this effect lasts even after they sit down. Exercising has been proven to reduce stress, focus the mind, increase productivity and enhance memory. In particular, aerobic exercises encourage the growth of new brain cells in the hippocampus.

Criticism is inevitable

We will inevitably receive rejections throughout our writing careers, but we should not doubt our ability as soon as this happens. Sharing our drafts with friends or a mentor will often help us in giving the right context and meaning to our work.

Most people struggle with being judged for what they are. This will hinder them from putting their ideas out in open space.

Goals and rewards

Set goals for each writing session, like writing a certain number of words or revising a draft, and reward yourself for completing them. Some authors set word count goals.

Avoid distractions

We are surrounded by distractions and seemingly urgent interruptions to our work. Avoid these unnecessary distractions. They tend to occupy a lot of mind space which can otherwise be used more productively.

Say no to binge writing

Amateur writers tend to binge-write—doing nothing for weeks and then locking themselves into a room and writing for days on end. This drains us out physically and mentally, and affects the quality of work. A more pragmatic approach would be to break down the task of writing into smaller segments.

In conclusion, the only thing that will really get us to overcome creative block is to simply start the process of writing. The creative juices will then inevitably start to flow again and we can let the words flow out!

The writer is senior psychiatrist, Manas Institute of Mental Health, Hubli, Karnataka.

GUEST COLUMN

Innovate and collaborate

BY SANJAYA MARIWALA

Ten thousand acres under cultivation, 45,000 tonnes of marigold production, touching the lives of 9,000 farmers and multiplying their income from around ₹30,000 per acre to nearly ₹3lakh per acre—this is what we conceived and delivered in less than 10 years. And this was just for one of our products—Lutein—the key ingredient to manufacture nutraceutical formulations for eye care. Given that we required a specific quality of marigold to extract quality Lutein, we ventured into cultivating the crop ourselves.

Nature-based science is deep-rooted in India, and there is a huge export potential yet to be tapped. Like marigold, there are many natural herbs and flowers rich in medicinal properties, like curcumin from turmeric or piperine from black pepper. India is the dominant supplier of such plant materials and ranks among the top three producers in the world. India's overall contribution to the global nutraceutical market, however, remains minuscule, at just about 1-2 per cent. At \$4 billion today, nutraceuticals have immense potential to reach \$9 billion in the next five years.

Everything, including health

care, saw a digital transformation during the pandemic. There was another fundamental transformation—the resurgence of the preventive care model. Patient care has shifted from hospitals to homes. And, prescription-based consulting has become customised and personalised. And, this shift has triggered significant growth potential for the nutraceutical industry.

The current ecosystem, including the regulations, is well-defined and robust in the US, the European Union and Japan. China, despite similar complexities as India, captured 14 per cent of the global trade. So, radical changes are a must for India. Availability of natural resources, labour, research talent and business community make it possible for India to be present across the value chain—from farms to formulation. While opportunities exist, the key to meaningful conversion lies in making the environment conducive for industry players and building a strong ecosystem. A collaborative approach is the only solution.

We need to recognise that to succeed in this space, a new model of agriculture-linked enterprise needs to be created and nurtured. Entrepreneurs still

wait for the government to fix crop availability and the cultivation of raw materials. We experimented with marigold cultivation in 2009 and expanded it to paprika in 2015.

India is one of the mega-diverse countries, harbouring nearly 7-8 per cent of the recorded species of the world, and representing 4 of the 34 globally identified biodiversity hotspots. India is also a vast repository of traditional knowledge associated with biological resources. While regulators will have to continue to provide support through reforms, ease of doing business and other policy incentives, businesses will have to step up and invest enough to make India a global hub for the nutraceutical industry.

The future of the nutraceutical industry is promising. What is essential for us is to bridge the regulatory gaps, make all constituents equal stakeholders, build a common agenda and align them to achieve the goals.

The writer is executive chairman and managing director, OmniActive Health Technologies.



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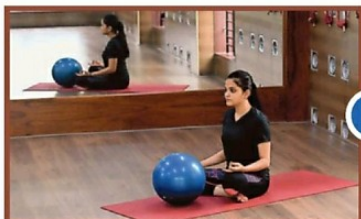
By Dr S.N. Omkar
yogaomkar@yahoo.com

SOOTHING FORWARD BEND

The abdomen houses stomach, intestines, liver, spleen and pancreas, and the pelvis contains urinary and genital organs. With the help of a small ball, these organs can be massaged for good health. It also benefits the lower back muscles.

METHOD:

- Take a stability ball of 30cm diameter
- Fold both legs sideways and spread the knees apart
- Pull the ball closer to the trunk
- Gently lean forward on to the ball
- Grip the ball closer to the trunk
- Stretch your hands forward, with palms pressed on the floor
- Feel the gentle pressure on the abdomen and pelvis as you breathe in and out
- Breathe—as you inhale the abdomen expands, and as you exhale it contracts
- Breathe slowly—about six breaths or less per minute
- Exhale slower than you inhale (for example, if you inhale for four seconds, exhale for six seconds)
- Feel your lower back muscles, in particular the lumbar fascia (the thick skin on the lower back)
- The fascia expands as you inhale and contracts as you exhale
- Stay for about five minutes
- Slowly come up, stretch both legs, and relax



1



2



3



5



4

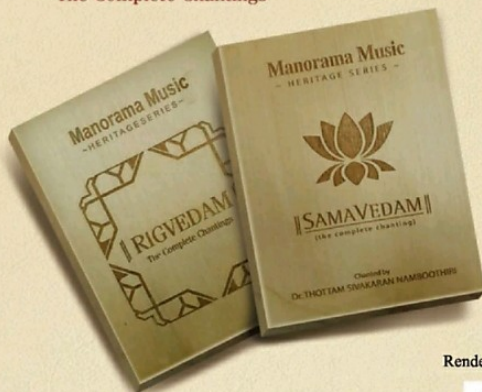


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